

## ABSTRACT

Optical properties with high non-linearity such as a modulation transfer function (MTF) are efficiently optimized at high speed compared to conventional methods. An optimal solution of an optical system is obtained in a first optimization unit using a merit function on aberration. Weights or target values of the merit function on aberration is automatically adjusted in a second optimization unit in a manner that an evaluated value of the MTF or the like approaches a desired value. The first optimization unit re-optimizes the optical system using the weights or target values which have been automatically adjusted. Thus, automated is a function equivalent to the operation which has been conducted by a designer such as adjustment to weights or target values.